

Work Order ID 83185

83185

April-13-12 12:59:14 PM

Page 1

Item ID: D412-664-203

Accept

N900040100

Setup Start

NS1

Revision ID:

Item Name: Crosstube Aft

Start Date: 13/04/2012 Start Qty: 1.00

1

Cust Item ID:

Required Date: 27/04/2012 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: MLJ

Date: 12/04/13 Tooling:

Date:

Run Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr								
----------	--------------	--	--	--	--	--	--	--	--

D412-664-243	E/DEO								
--------------	-------	--	--	--	--	--	--	--	--

100

100

DOCUMENT CONTROL

DC

Document Control

Memo

0.00

8/7/13

110

110

Packaging

Packaging

Memo

0.00

JW

12-4-30

120

120

BENDING MACHINE - CROSSTUBES

CNC Bend 2

CNC Alpha 160 Bender

Memo

0.00

Bend tube as per Dwg D412-664-243 using CNC bender program 412-aft and Folio FT010

JK

12-4-30

W/O: 63185

WORK ORDER CHANGES

DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D412-684-203 PAR #: Fault Category: X tube NCR: Yes No DQA: *check* Date: 12/05/28

Resolution: use as is Disposition: use as is QA: N/C Closed: *ck* Date: 12/5/28

WORK ORDER NON-CONFORMANCE (NCR)								
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
12.05.02	120	CRUSHING IS OVER TOLERANCE	<i>P</i> 12.05.02 PS1042	Acceptable per attached <i>SP</i>	<i>N/A</i>	<i>Go</i> 12/05/02	<i>P</i> 12.05.02 PS1042	<i>S</i> 12/05/02

NOTE: Date & initial all entries

Work Order ID 83185

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Item ID: D412-664-203

Accept

N900040100

Setup Start

NS1

Revision ID:

Item Name: Crosstube Aft

Stop

NS2

Start Date: 13/04/2012 Start Qty: 1.00

1

Cust Item ID:

Required Date: 27/04/2012 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2

Sequence ID/
Work Center ID

130

130

QC

Quality Control

Operation
Description

QC15- Crosstube Dimensional Check

Set Up/
Run Hours

0.00

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

876/02

140

140

Crosstubes

Crosstubes

0.00

Memo

0.00

1-Drill pilot holes in tube as per Dwg D412-664-243 using drill Jig DT8550 & DT8551 and drill table DT8577 using #9 holes as per QSI 10 to install towers.

2-Ream hole to finish size in tube as per Dwg D412-664-243 using drill Jig DT8550 & DT8551. Check dimensions between holes, both sides on both cuffs, to ensure alignment with saddle holes.

3-SCRIBE PART # & BATCH #

4-Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D412-664-243

Rm
12-5-1

JW
12-5-1

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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Item ID: D412-664-203

Accept

N900040100

Setup Start

NS1

Revision ID:

Item Name: Crosstube Aft

Stop

NS2

Start Date: 13/04/2012 Start Qty: 1.00 *1*

Cust Item ID:

Required Date: 27/04/2012 Req'd Qty: 1.00 *1*

Customer:

Reference:

Approvals: Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start

NR1

QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

NR2

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

150

Crosstubes Chemical Conversion

0.00

JW

12-5-1

150

HandFXtube

Memo

0.00

Hand Finishing Crosstubes

160

QC3- Inspect Part Finish

0.00

8/26/09

160

QC

Quality Control

170

QC5- Inspect part completeness to step on W/O

0.00

6/26/09
0.00

170

QC

Quality Control

POSITIVE RECALL
EFFECTIVE 12-05-09
RELEASED 12-05-09
AUTHOR 12-05-09
DATE 12-05-09

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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NOTE: Date & initial all entries

Work Order ID 83185

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Item ID: D412-664-203

Accept

N900040100

Setup Start

NS1

Revision ID:

Item Name: Crosstube Aft

Stop

NS2

Start Date: 13/04/2012 Start Qty: 1.00 *1*

Cust Item ID:

Required Date: 27/04/2012 Req'd Qty: 1.00 *1*

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start *NR1*
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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180 Outsource process - NDT per QSI038 4.1 0.00

180

Outsource2

Memo 0.00
Liquid Penetrant Inspection as per QSI 038Or
Issue P/O: 16903 PPI as per ASTM 1417
Level 2 Attach copy of NDT results to work order

12-05-4

190

190

Packaging

Packaging

Memo 0.00
Inspect for transit damage
Ensure copy of NDT results attached to work order.

12-05-4

200

200

QC

Quality Control

QC5- Inspect part completeness to step on W/O 0.00

Memo 0.00

Inspect for damage & ensure results are as per Dwg D412-664-203

12-05-04 (1)

W/O:		WORK ORDER CHANGES							
DATE	STEP	PROCEDURE CHANGE			By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)							
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector	
			Initial Chief Eng	Action Description Chief Eng	Sign & Date				

NOTE: Date & initial all entries

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Item ID: D412-664-203

Accept

N900040100

Setup

Start

NS1

Revision ID:

Item Name: Crosstube Aft

Stop

NS2

Start Date: 13/04/2012 Start Qty: 1.00 *1*

Cust Item ID:

Required Date: 27/04/2012 Req'd Qty: 1.00 *1*

Customer:

Reference:

Approvals: Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start

NR1

QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

NR2

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

210

210

SprayPaint

0.00

12 - 5 - 7

SprayPaint

Memo

0.00

Spray Painting

Mask underside of crosstube as shown

1-Prime inside and outside crosstube as per QSI 005 4.2

2-Paint outside crosstube with White Imron as per DEO D412-664-243 and QSI 005 4.2

PRIME: 121334
Start Time: 7:00
Finish Time: 8:00
PAINT: 121625
Start Time: 3:45
Finish Time: 4:30

★ CLEAR COAT OUTSIDE
PER ATTACHED INSTRUCTION

4P12.0504

Clear : 121625
Start : 3:30
Finish : 4:30

220

QC14- Inspect Spray Paint

0.00

12 - 05 - 08 (1)

220

QC

Quality Control

Memo

0.00

Then, Wrap in plastic bag to protect from scratches

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

W/O:		WORK ORDER CHANGES							
DATE	STEP	PROCEDURE CHANGE			By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 83185

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Item ID: D412-664-203

Accept

N900040100

Setup Start

NS1

Revision ID:

Item Name: Crosstube Aft

Stop

NS2

Start Date: 13/04/2012 Start Qty: 1.00 *1*

Cust Item ID:

Required Date: 27/04/2012 Req'd Qty: 1.00 *1*

Customer:

Reference:

Approvals: Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start

NR1

QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

NR2

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

250

Pick Kit

0.00

250

Packaging

Memo

0.00

1X

SP

12-5-15

260

QC4- 100% Inspect kits for completeness

0.00

5/17/15

260

QC

Memo

0.00

Quality Control

270

Packaging

0.00

270

Packaging

Memo

0.00

Packaging

Identify and pack for shipping as per PPP D412-664-203

*****Ensure tube is not packaged if curing time is less than 12 hrs, see step 27
for application time & date *****

Time & date of packaging: _____

Location: 103

TD

6/5/15

REV

W/O:		WORK ORDER CHANGES							
DATE	STEP	PROCEDURE CHANGE			By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)							
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector	
			Initial Chief Eng	Action Description Chief Eng	Sign & Date				

NOTE: Date & initial all entries

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Item ID: D412-664-203

Accept

N900040100

Setup

Start

NS1

Revision ID:

Item Name: Crosstube Aft

Stop

NS2

Start Date: 13/04/2012 Start Qty: 1.00 *1*

Cust Item ID:

Required Date: 27/04/2012 Req'd Qty: 1.00 *1*

Customer:

Reference:

Approvals: Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run

Start

NR1

QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

NR2

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

280

QC21- Final Inspection - Work Order Release

0.00

280

QC

Quality Control

Memo

0.00

12/5/16 JF

MF
12-05-16

W/O:		WORK ORDER CHANGES							
DATE	STEP	PROCEDURE CHANGE			By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)							
DATE	STEP	Description of NC Section A	Corrective Action Section B				Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date				

NOTE: Date & initial all entries

Picklist Print

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Page 1

Work Order ID: 83185

83185
D412-664-203

Parent Item: D412-664-203

Parent Item Name: Crosstube Aft

Start Date: 13/04/2012

Required Date: 27/04/2012

Start Qty: 1.00

Required Qty: 1.00

Comments:

IPP Rev:E04.02.16Reformat; Added D3189-1K/DS
IPP Rev:F 06-03-29 Remove Coments on Pick List JLM
IPP Rev:G 06.12.08 per ECN 886 EC
IPP Rev:H 07-04-30 As per Rev D JLM
IPP Rev:I 08-06-12 add comment in seq. 21 DD verified by:EC IPP rev J
11.04.21 DEO D412-664-243-E-1 EC verified DD IPP REV:K
11.10.03 DEO D412-664-243-E-2 DD ver:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D412-664-203TRN		Manufactured	No			110	Each	0.0000	1	1			

D412-664-203TRN

Crosstube Turning Detail

D2896-1		Manufactured	No			230	Each	26.0000	1	1			
									**				

D2896-1

Support

	<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
<u>B# 71502</u>	LG052	8	
<u>74465</u>	80586	8	
	LG053	18	
	74465	18	

D3189-1		Manufactured	No			230	Each	20.0000	2	2			
									**				

D3189-1

Chafing Shield

	<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
	FG	4	
	36065	4	
	LG052	16	
	81060	16	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

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Page 2

Work Order ID: 83185

83185

Parent Item: D412-664-203

D412-664-203

Parent Item Name: Crosstube Aft

Start Date: 13/04/2012

Required Date: 27/04/2012

D3595-063-570

Manufactured No

230

Each

89.0000

2

2

*********D3595-063-570***

RUBBER CUSHION

W 12.05.08

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
FG	8	
37971	1	
42243	7	
MAT052	81	
71534	4	
76546	77	

MS21920-28

Purchased No

230

Each

79.0000

4

4

*********MS21920-28***

Clamp(per MIL-DTL-8783C)

W 12.05.08

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
FG	5	
105884	5	
LG050	74	
116839	2	
118713	4	
120054	2	
120884	16	
121067	50	

MS21920-30

Purchased No

230

Each

62.0000

2

2

*********MS21920-30***

clamp(per MIL-DTL-8783C)

W 12.05.08

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
LG	48	
119529	48	
LG051	14	
111258	14	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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NOTE: Date & initial all entries

Picklist Print

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Work Order ID: 83185

83185
D412-664-203

Parent Item: D412-664-203
Parent Item Name: Crosstube Aft

Start Date: 13/04/2012

Required Date: 27/04/2012

Start Qty: 1.00

Required Qty: 1.00

AN6-40A

AN6-40A
Bolt

Purchased No 250 Each 97.0000

4 4
**

SP

Location	Loc Qty	Loc Code
ST342	97	
120187	68	
120833	4	
121349	25	

AN6-41A

AN6-41A
Bolt

Purchased No 250 Each 59.0000

2 2
**

SP

Location	Loc Qty	Loc Code
ST342	59	
119749	8	
120187	1	
120423	50	

AN960JD616

AN960JD616
Washer

NAS1149D0663J Purchased

No 250 Each 0.0000

18 18
**

121243 SP. S

MS21042L6

MS21042L6
Nut

Purchased No 250 Each 782.0000

6 6
**

SP 12515

Location	Loc Qty	Loc Code
ST300	782	
117677	25	
118384	3	
118927	48	
119075	506	
120308	200	

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE		By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

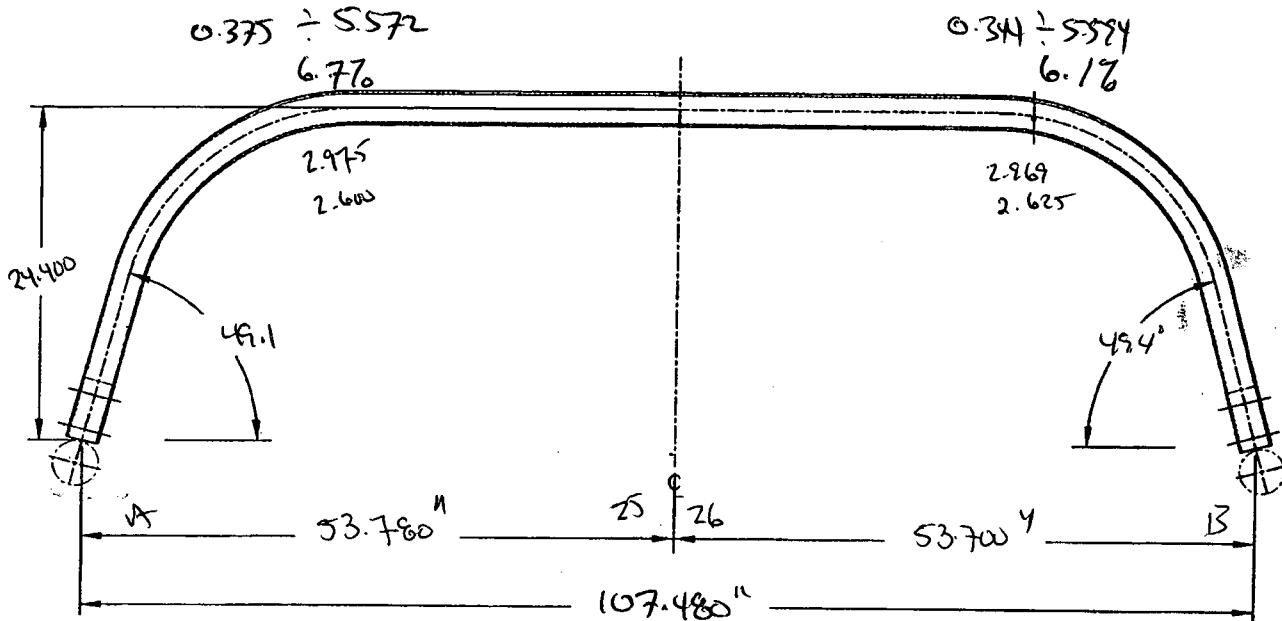
Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD	Work Order:	83185
Description: Crosstube High Aft (412)	Part Number:	D412-664-203
Inspection Dwg: D412-664-243	Rev: E	Page 1 of 1

Required Dimension	Min	Max
Height	24.24	24.50
1/2 Span	53.59	53.85
Angle	49	52
Total Span	107.18	107.70



Comments
Since A = 6.70 = crushin @ 25 Passes
Since B = 6.10 = crushin @ 26 Passes

QC15 Inspection	0
Date	17/03/02

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	07.05.08	Dimensions updated per Dwg rev. D	KJ/JLM	
C	10.02.02	Dwg Rev updated	KJ	J

W/O:		WORK ORDER CHANGES							
DATE	STEP	PROCEDURE CHANGE			By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Item	Qty	Part Number	Description
1	X	D412-664-243	CROSSTUBE ASSEMBLY (412 HIGH AFT)
2	1	D6009-129	CROSSTUBE
3	2	D3595-063-570	RUBBER CUSHION
4	1	D2896-1	SUPPORT
5	2	D3189-1	CHAFING SHIELD
6	2	D2856-600-1009	ABRASION STRIP
7	4	MS21920-28	CLAMP
8	2	MS21920-30	CLAMP (OR MS21920-32)
9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTROL/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6009-129
FINISHED LENGTH = 124.100 ± 0.020 (BEFORE BENDING/TRIMMING)
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D412-664-243" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: 47.0 lbs (PER IIN-D212-664)
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 8 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2896-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2896-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-30 CLAMPS (OR -32) WITH D3595-063-570 RUBBER CUSHIONS TO SECURE THE D2896-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE OF CROSSTUBE SUPPORT.
- 14) INSTALL D2856-600-1009 ABRASION STRIPS WITH A 0.13 REF GAP ON BOTTOM SIDE OF CROSSTUBE PER QSI 035.
- 15) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 16) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER

NO. 83185 MCJ
12/04/13

② DEO ATTACHED

RELEASED
2009-10-29
WPD

E	REFORMAT/REVISE GENERAL NOTES; REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS; RELOCATED FLAG #6 PER PAR 08-046 (ZN A6-3); ADD TOLERANCE (ZN B6-3, C4-3, C8-3 & C5-3); MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4.	RF	09.09.30
D	REMOVE D2732-058, CHANGE TO D3595-063-570	PH	07.03.09
C	REMOVE D2856-600-1087, ADD D2732-058 & MAGNOBOND 6398, MS21920-32 WAS MS21920-30	MB	06.10.27
B	ADD HOLES FOR COMPATABILITY WITH BHT/AA SKIDTUBES	PH	05.02.04
A	NEW ISSUE	PH	01.10.17
REV.	DESCRIPTION	BY	DATE
DESIGN	PH	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF	DRAWING NO. D412-664-243	
CHECKED	Q	REV. E SHEET 1 OF 4	
MFG. APPR.	DX	TITLE CROSSTUBE ASSEMBLY (412 HI AFT) NTS	
APPROVED	100	SCALE	
DE APPR.	100	DATE 09.09.30	

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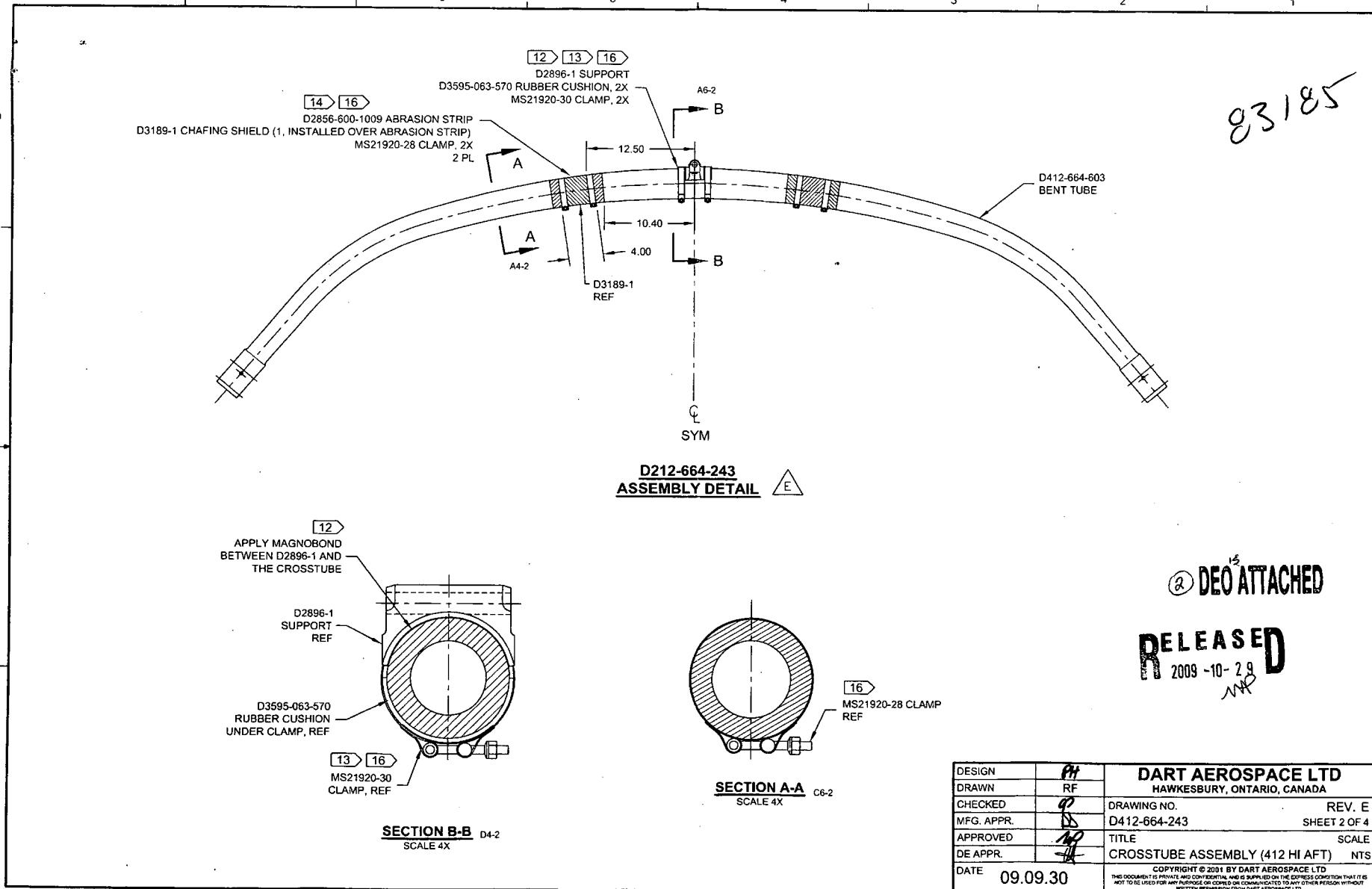
W/O:		WORK ORDER CHANGES							
DATE	STEP	PROCEDURE CHANGE			By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)							
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector	
			Initial Chief Eng	Action Description Chief Eng	Sign & Date				

NOTE: Date & initial all entries



DESIGN	RF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA
DRAWN	RF	DRAWING NO. D412-664-243
CHECKED	9	REV. E SHEET 2 OF 4
MFG. APPR.	DA	
APPROVED	AP	TITLE CROSSTUBE ASSEMBLY (412 HI AFT) NTS
DE APPR.	AP	
DATE	09.09.30	COPYRIGHT © 2001 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.

8 7 6 5 4 3 2 1

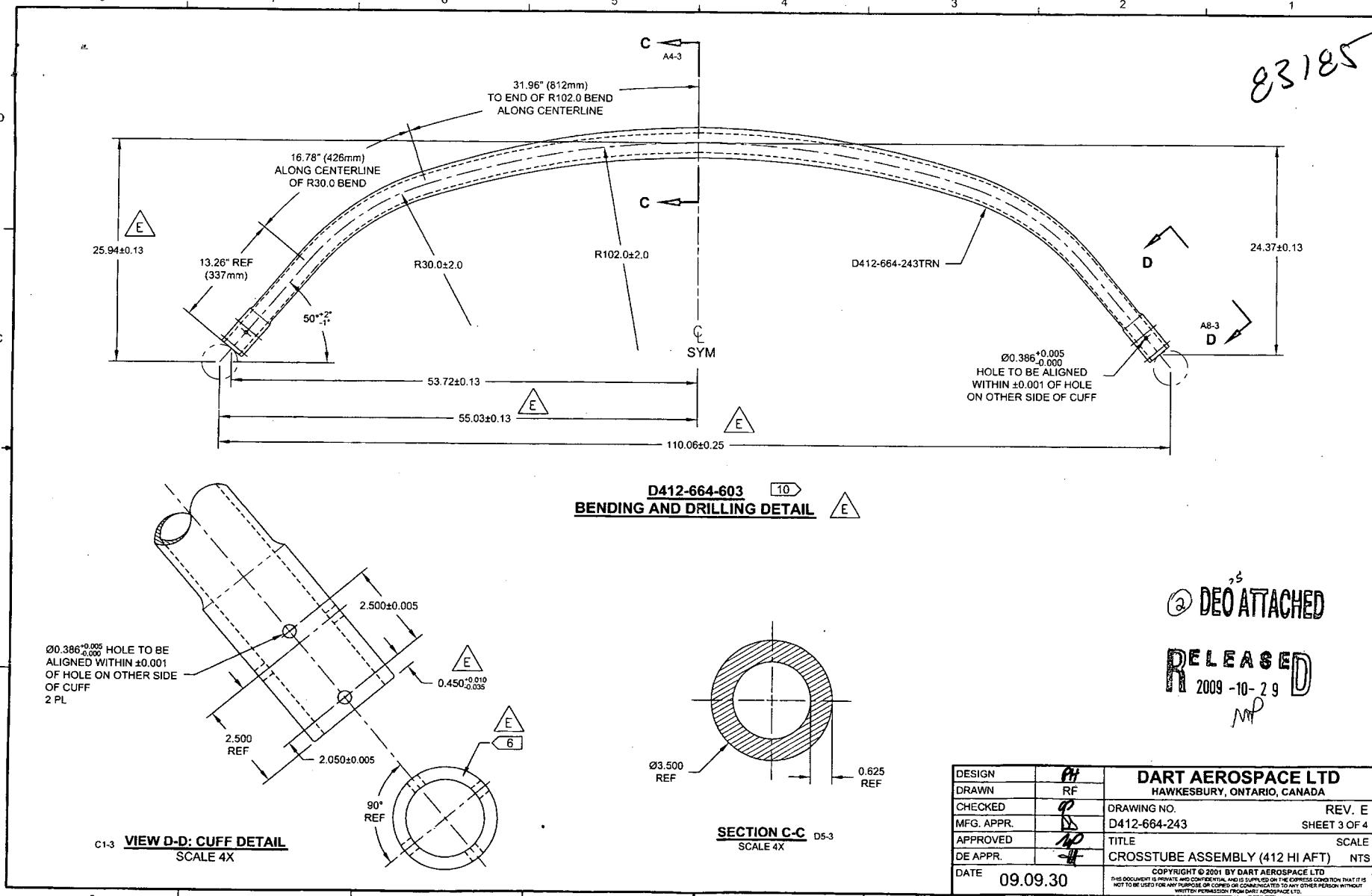
W/O:		WORK ORDER CHANGES							
DATE	STEP	PROCEDURE CHANGE			By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)							
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector	
			Initial Chief Eng	Action Description Chief Eng	Sign & Date				

NOTE: Date & initial all entries



DESIGN	RF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA
DRAWN	RF	DRAWING NO. D412-664-243
CHECKED	PP	REV. E
MFG. APPR.	DA	SHEET 3 OF 4
APPROVED	MP	TITLE NTS
DE APPR.	MP	SCALE
DATE	09.09.30	CROSSTUBE ASSEMBLY (412 HI AFT)

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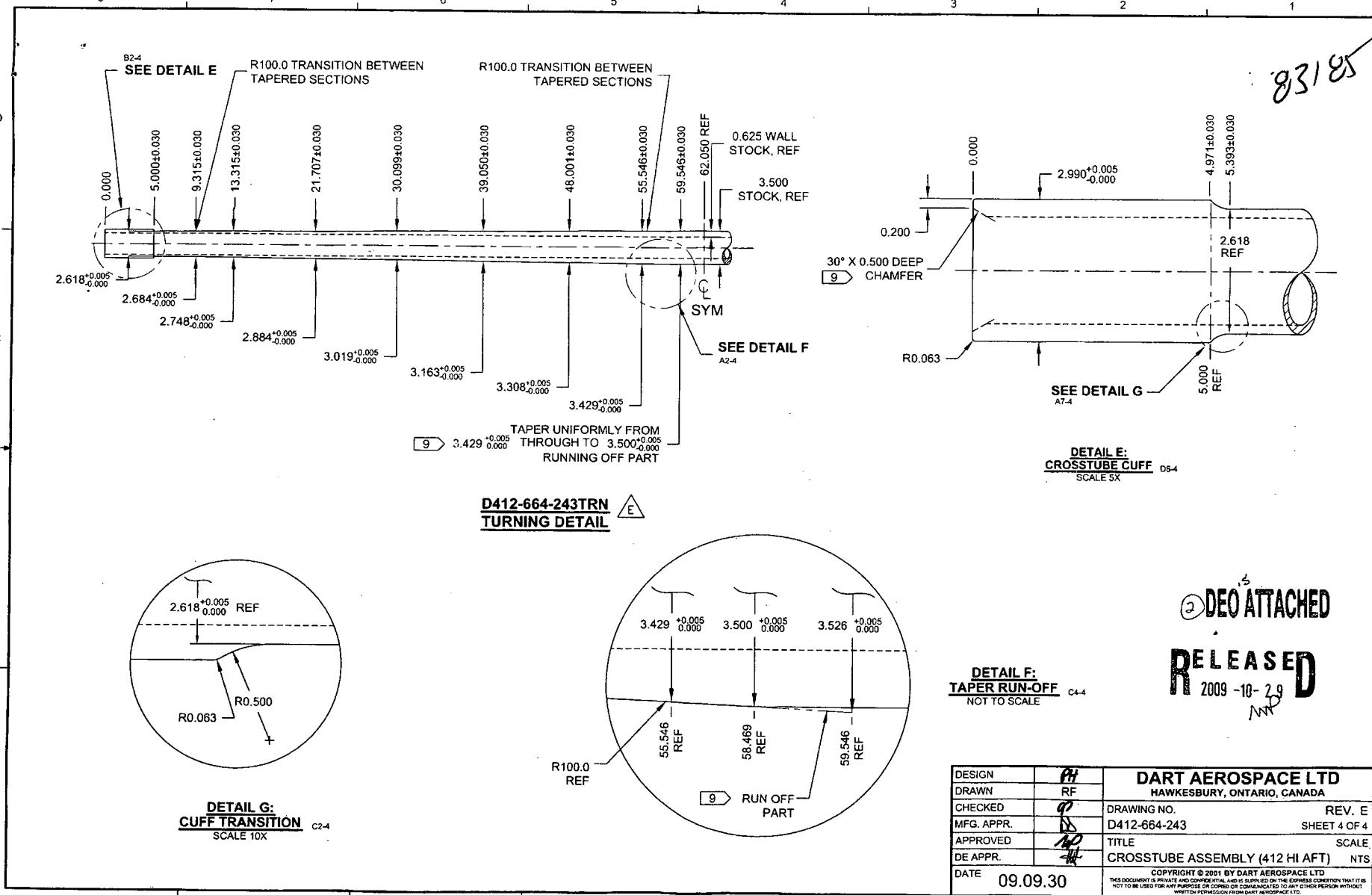
W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



DESIGN	<i>RF</i>	DART AEROSPACE LTD
DRAWN	<i>RF</i>	HAWKESBURY, ONTARIO, CANADA
CHECKED	<i>PP</i>	DRAWING NO.
MFG. APPR.	<i>DD</i>	REV. E
APPROVED	<i>MM</i>	D412-664-243
DE APPR.	<i>MM</i>	SCALE
DATE	09.09.30	CROSSTUBE ASSEMBLY (412 HI AFT) NTS

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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DRAWING NO. D412-664-243	TITLE CROSSTUBE ASSEMBLY (412 HI AFT)	REV. E	DART AEROSPACE LTD ENGINEERING ORDER	D.E.O. NO. D412-664-243-E-1	SHEET NO. SHEET 1 OF 2	SCALE NTS
DRAWN 11.03.31	CHECKED 11/03/31	MFG. APPR. E	APPROVED 11/03/31	DE APPR. 11/03/31		
DATE 11.03.31	DATE 11/03/31	DATE 11.03.31	DATE 11/03/31	DATE 11.03.31	DATE 11/03/31	

PURPOSE:

REMOVED ABRASION STRIP IN FAVOR OF A THIN LAYER OF PROSEAL 890.

83185

CHANGE:

PARTS LIST IS AMENDED AS FOLLOWS:

IS:

Item	Qty	Part Number	Description
	-243		
6	0	D2856-600-1009	ABRASION STRIP

WAS:

6	2	D2856-600-1009	ABRASION STRIP
---	---	----------------	----------------

NOTES 2 AND 14, SHEET 1 ARE AMENDED AS FOLLOWS:

IS:

2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
MASK UNDERSIDE OF CROSSTUBE AS SHOWN (HATCHED AREA)
PAINT OUTSIDE PER DART QSI 005 4.2
AFTER PAINTING, APPLY CLEAR COAT ON HATCHED AREA

14) APPLY A THIN COAT OF PROSEAL 890 ON INSIDE CONCAVE SURFACE OF D3189-1 CHAFING SHIELD AND LET CURE PER MANUFACTURER'S INSTRUCTIONS. INSTALL PROSEAL D3189-1 CHAFING SHIELD ONTO CROSSTUBE BY APPLYING A THIN COAT OF PROSEAL 890 ONTO CROSSTUBE. BE SURE TO ELIMINATE ANY AIR GAPS.

WAS:

2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2

14) INSTALL D2856-600-1009 ABRASION STRIPS WITH A 0.13 REF GAP ON BOTTOM SIDE OF CROSSTUBE PER QSI 035.

RELEASED
2011-04-07
JW

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

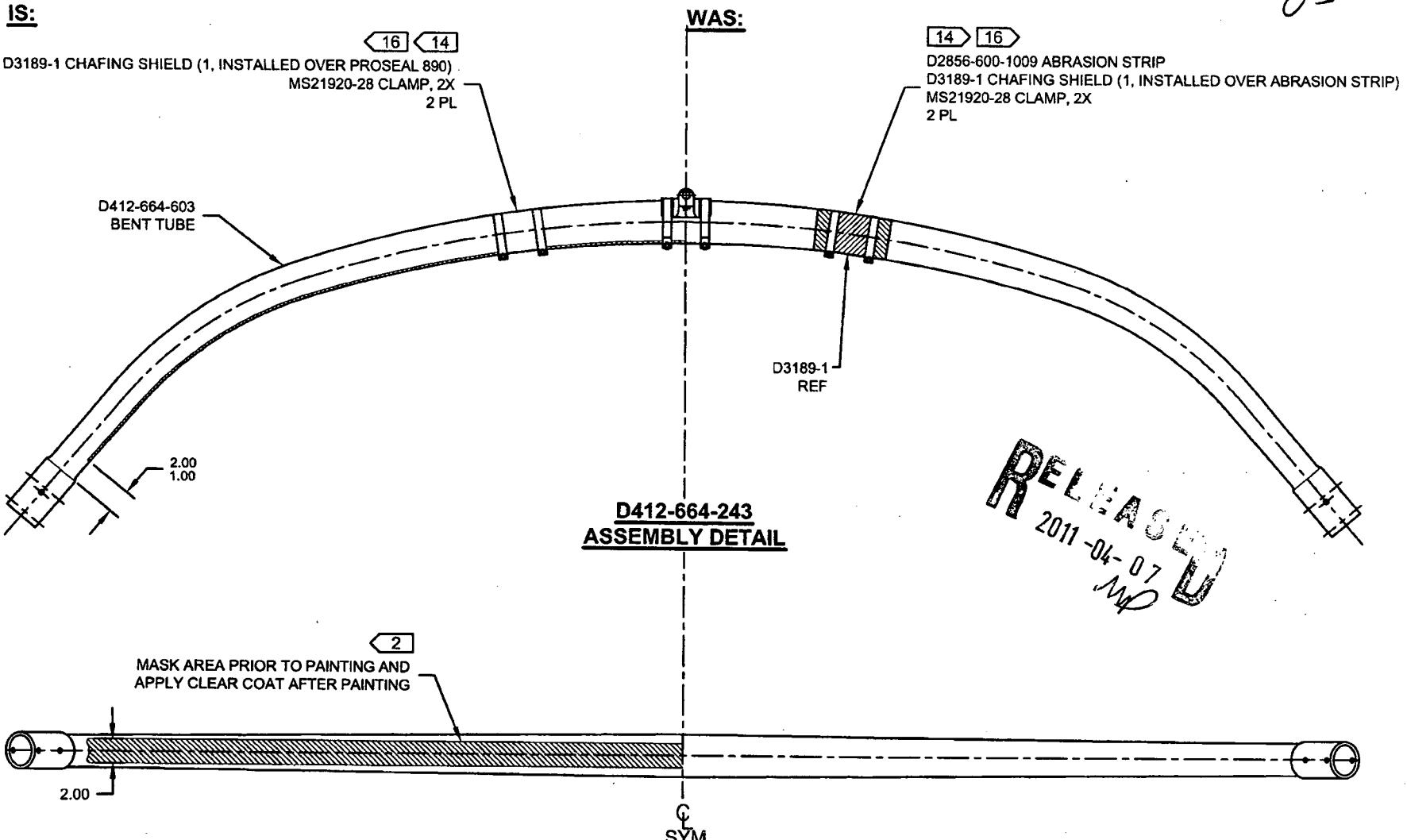
DRAWING NO. D412-664-243	TITLE CROSSTUBE ASSEMBLY (412 HI AFT)	REV. E	DART AEROSPACE LTD ENGINEERING ORDER	D.E.O. NO. D412-664-243-E-1	SHEET NO. SHEET 2 OF 2	SCALE NTS
DRAWN <i>LS</i>	CHECKED <i>MD</i>	MFG. APPR. <i>EC</i>	APPROVED <i>MD</i>	DE APPR. <i>MD</i>		
DATE 11.03.31	DATE 11.03.31	DATE 11.03.31	DATE 11.03.31	DATE 11.03.31	DATE 11.03.31	

IS:

D3189-1 CHAFING SHIELD (1, INSTALLED OVER PROSEAL 890)
MS21920-28 CLAMP, 2X
2 PL

16 14

D412-664-603
BENT TUBE



W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DRAWING NO. D412-664-243	TITLE CROSSTUBE ASS'Y (412 HI AFT)	REV. E	DART AEROSPACE LTD ENGINEERING ORDER	D.E.O. NO. D412-664-243-E-2	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN <i>q</i>	CHECKED <i>AS</i>		MFG. APPR. <i>E</i>	APPROVED <i>MP</i>	DE APPR. <i>W</i>	
DATE 11.09.07	DATE 11.09.19	DATE 11.09.19	DATE 11.09.19	DATE 11.09.19	DATE 11.09.19	

PURPOSE:

REPLACE MAGNOBOND WITH 3M DP460 SCOTCH-WELD EPOXY ADHESIVE

83/85

CHANGE:

IS:

Item	Qty -243	Part Number	Description
9	A/R	SCOTCH-WELD DP460	EPOXY ADHESIVE, 3M SCOTCH-WELD

WAS:

9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)
---	-----	----------------	---------------------------------------------------------------------------------------------------------------

NOTE 12 & 16, SHEET 1 IS AMENDED AS FOLLOWS:

IS:

12) INSTALL D2896-1 CENTER SUPPORT USING A 0.04" TO 0.07" THICK LAYER OF SCOTCH-WELD DP460 PER QSI 015. LET CURE FOR 24 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.

16) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER ADHESIVE HAS CURED FOR 24 HOURS.

WAS:

12) INSTALL D2896-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2896-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.

16) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

RELEASED
2011-09-29
MP

W/O:

WORK ORDER CHANGES

DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

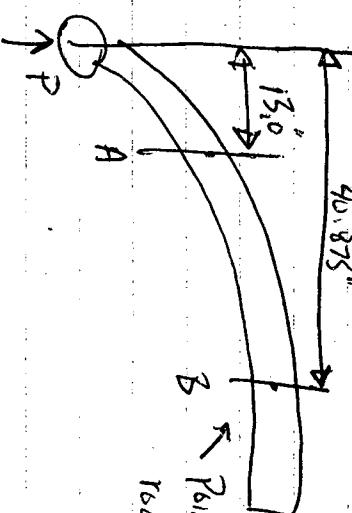
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

CRUSHING OF D412-664-243

11.12.06

Acceptability of 8% CRUSHING AT END OF BEND



Point A: OD₁ = 2.961", OD₂ = 2.522"

$$\text{CRUSHING} = (2.961 - 2.522) / (2.961 + 2.522) = 8\%$$

$$I = 1.676 \text{ in}^4 \text{ (From AutoCAD)}$$

Point B: OD₁ = 3.307", I = 4.613 in⁴

$$\begin{aligned} A^o \\ \bar{F} &= M_c / I = P \times 13 \times 2.961 / 2 \times 1.676 = 11.484 \cdot P \\ B^o \\ " &= P \times 40.875 \times 3.307 / 2 \times 4.613 = 14.651 \cdot P \end{aligned}$$

$$M.S. = 14.651 / 11.484 - 1 = 0.27$$

Tube will break at rocker beam contact before area of 8% crushing; 8% crushing in area at end of tube bend is acceptable

11.12.06



LIQUID PENETRANT TEST REPORT

P- 05648

CLIENT JART AEROSPACE DATE MAY-04-2012 PAGE 1 OF 1
 ATTENTION LINDA, CHANTAL, MATT TIME AM PM
 ADDRESS 1270, ABERDEEN ST.
THAWKES BURG
ON
 PROJECT (PT) WET FLUORESCENT LIQUID PENETRANT INSPECTION ON 8 "CROSSTUBE", 1 X EXHAUST PORT FILTER
 ITEM(S) EXAMINED - SEE BELOW

JOB DESCRIPTION PROCEDURE NO. LT-002 REV./DATE 2009 TECHNIQUE NO. LT-002 REV./DATE 2009

PART NO. MATERIAL Aluminum/Steel THICKNESS 21/8

SCOPE PERFORMED A WET FLUO LPI ON 100% OF THE EXTERNAL SURFACE OF ITEMS LISTED
Below

TEST DETAILS

METHOD	<input checked="" type="checkbox"/> FLUORESCENT	<input type="checkbox"/> VISIBLE	<input checked="" type="checkbox"/> WATER WASH	<input type="checkbox"/> SOLVENT REMOVABLE	<input type="checkbox"/> POST EMULSIFIED
FAMILY BRAND	<u>MAGNAFLUX</u>		BLACK LIGHT S/N <u>13798</u>	OUTPUT > 1000 μ W/cm ²	AMBIENT < 2 fc
PENETRANT	<u>ZL-67</u>	MINIMUM DWELL TIME	<u>45</u> MIN.	LIGHTING EQUIP. <input type="checkbox"/> FLASHLIGHT <input type="checkbox"/> TROUBLELIGHT	OUTPUT > 100 fc @ SURFACE
PENETRANT REMOVER	<u>IT-2</u>	MINIMUM DRY TIME	<u>>10</u> MIN.	OTHER	
DEVELOPER	<u>SKD-52</u>	MINIMUM DWELL TIME	<u>30</u> MIN.	LIGHT METER S/N <u>1098866</u>	CAL DUE DATE <u>05/2012</u>
DEVELOPER TYPE	<input checked="" type="checkbox"/> NON AQUEOUS	<input type="checkbox"/> AQUEOUS	<input type="checkbox"/> DRY		

TEST SURFACE

SURFACE CONDITION AS GROUND AS WELDED MACHINED SHOT BLASTED CLEAN BARE METAL

SURFACE TEMPERATURE < -4°C/20°F -4°C/20°F TO 10°C/50°F 10°C/50°F TO 52°C/125°F > 52°C/125°F

RESULTS- METRIC IMPERIAL

1	FITTING B.P.D W.C.I.D 83349	✓
2	TUBE W.C.I.D 83735	✓
3	CROSSTUBE FWD W.C.I.D 83703	✓
4	" FWD W.C.I.D 83703	✓
5	" FWD W.C.I.D 83709	✓
6	" FWD W.C.I.D 83708	✓
7	" AFT W.C.I.D 83184	✓
8	" AFT W.C.I.D 83185	✓
9	" AFT W.C.I.D 83114	✓
10	" AFT W.C.I.D 83113	✓

NO RELEVANT INDICATION WAS DETECTED AS PER

APPLICABLE STANDARD

Scope of Services
 The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understood that all descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be construed as representations or warranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of the data or other information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services.

Standard of Care

In performing the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or implied, is made or intended by Acuren Group Inc.

SIGNATURES

CLIENT REPRESENTATIVE	<u>Matthew Murdoch</u> PRINT	<u>Matthew Murdoch</u> SIGNATURE	DTR # <u>E84955</u>
TECHNICIAN (SIGNATURE):	<u>Yves Desbiens</u>		REPORT REVIEWED BY:
NAME (PRINT):	<u>Yves Desbiens</u>		NAME <u></u> INITIALS <u></u>
CGSB LEVEL	<u>2</u>	SNT LEVEL <u>2</u>	2 ND TECHNICIAN <u></u>
CGSB REG. NO.	<u>3049</u>	CGSB LEVEL <u></u>	SNT LEVEL <u></u>
		CGSB REG. NO. <u></u>	

WHITE - CLIENT COPY

CANARY - OFFICE COPY

PINK - TECHNICIAN COPY

GOLD - OFFICE COPY

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
12.05.03	200/ 210	Apply clear coat to entire the outside surface of cravtubey except mask off area of support.					

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

REFERENCE ONLY

5.0 PARTS LIST

5.1 HIGH GEAR CROSSTUBES

Item	-101	-201	-203	Part Number	Description
	X			D212-664-101	CROSSTUBE INSTALLATION, 204/205/210/212/214/412, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K HIGH FWD
		X		D212-664-201	CROSSTUBE INSTALLATION, 204/205/210/212/214, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K HIGH AFT
			X	D412-664-203	CROSSTUBE INSTALLATION, 412 HIGH AFT
1	1			D212-664-141	CROSSTUBE ASSEMBLY, 204/205/210/212/214/412, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K HIGH FWD
2		1		D212-664-241	CROSSTUBE ASSEMBLY, 204/205/210/212/214, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K HIGH AFT
3			1	D412-664-243	CROSSTUBE ASSEMBLY, 412 HIGH AFT
10	2			* D2893-1	SUPPORT
11	4			* D3595-063-450	RUBBER CUSHION
12	4			* MS21920-25	CLAMP (OR MS21042-26)
13	4			AN6-35A	BOLT
14	4			AN6-36A	BOLT
15	6			MS21042L6	NUT (OR MS21042-6)
16	18			AN960JD616	WASHER
20	2			* D2940-1	SUPPORT
21	4			* D3595-063-530	RUBBER CUSHION
22	4			* MS21920-28	CLAMP (OR MS21042-30)
23	4			AN6-40A	BOLT
24	2			AN6-41A	BOLT
25	6			MS21042L6	NUT (OR MS21042-6)
26	18			AN960JD616	WASHER
30		1		* D2896-1	SUPPORT
32		2		* D3595-063-570	RUBBER CUSHION
33		4		* MS21920-28	CLAMP
34		2		* MS21920-30	CLAMP (OR MS21042-32)
35		4		AN6-40A	BOLT
36		2		AN6-41A	BOLT
37		6		MS21042L6	NUT (OR MS21042-6)
38		18		AN960JD616	WASHER
39		2		* D3189-1	CHAFING SHIELD
50	1	1		D3428-1	PLACARD

*REFERENCE ONLY. PARTS ARE INCLUDED IN D212-664-141/-241 OR D412-664-243 ASSEMBLIES ABOVE

NOTE: KITS INCLUDE EXTRA HARDWARE FOR COMPATIBILITY WITH BOTH DART AND BELL/AI SKIDTUBES.

Work Order ID 83185

April-13-12 12:59:14 PM

Item ID: D412-664-203

Revision ID:

Item Name: Crosstube Aft

Start Date: 13/04/2012 Start Qty: 1.00

Accept

83185

Required Date: 27/04/2012 Req'd Qty: 1.00

1

1

Reference:

Approvals: Process Plan: *MLJ* KSP

QC:

Date: 12/04/13 Tooling:

Date: SPC (Y/N):

N900040100

Setup

Start

NS1

Stop

NS2

Cust Item ID:

Customer:

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
100									
100	DOCUMENT CONTROL	0.00							
DC									
Document Control									
110									
110	Packaging	0.00							
Packaging									
Packaging									
120									
120	BENDING MACHINE - CROSSTUBES	0.00							
CNC Bend 2									
CNC Alpha 160 Bender									

110									
110	Packaging	0.00							
Packaging									
Packaging									

120									
120	BENDING MACHINE - CROSSTUBES	0.00							
CNC Bend 2									
CNC Alpha 160 Bender									

Page 1

MLJ 12/05/15

MLJ 12/05/15